MONTANA FISH, WILDLIFE & PARKS
HUNTING SEASON / QUOTA CHANGE SUPPORTING INFORMATION

Species: ELK
Region: 3
Hunting District: 313
Year: 2016-2017

1. **Describe the proposed season / quotas changes and provide a summary of prior history (i.e., prior history of permits, season types, etc.). REMEMBER THIS STEP IS TO BE ACCOMPLISHED BY THE INITIAL ENTRY INTO THE DATABASE—SO FOLKS CAN START THIS NARRATIVE WITH #2 BELOW.**
   a. Institute limited draw permits for brow-tined bulls during archery and general rifle season with a quota of 75 and a quota range of 50 – 150. The limited draw permits are proposed as first-choice only.
   b. Create youth-only antlerless B license with a quota of 30, quota range 15 – 50
   c. Eliminate youth-only brow-tined bull or antlerless permit
   d. Create antlerless B license with a quota of 30, quota range 15-50

2. **What is the objective of this proposed change? This could be a specific harvest amount or resulting population level or number of game damage complaints, etc.**

The objective of this proposed change is to increase the brow-tined bull:cow ratios to within 20% of the long-term average, and to adjust the current youth opportunity to be consistent with the limited draw permit structure. Additional B licenses are being created in order to provide additional opportunity, with a conservative quota in order to minimize biological impact to overall population numbers.

Brow-tined bull ratios have been at very low levels in recent years. Since 2009 we have observed on average 2.2 brow-tined bulls per 100 cows, as compared to an average of 19.5 brow-tined bulls per 100 cows observed during 1995-2005 (Table 1, Figure 1)
This elk population spans the boundary of Montana and Yellowstone National Park (YNP). The decline in brow-tined bull ratios observed within HD313 has also been observed across the total population, with 9 brow-tined bulls per 100 cows observed on average since 2009, as compared to 31.8 brow-tined bulls per 100 cows observed on average during 1995-2005 (Table 1, Figure 1). The decline in mature bulls in the population is also evident from harvest data: the proportion of 6-point or better bulls in the harvest has declined from 88% to 46% since 2004 (Table 2).

We have made attempts to address the low brow-tined bull ratios in 313 since 2012 with unlimited bull permits. These have been ineffective at reducing harvest. The unlimited permits were introduced in 2012, and bull harvest in 2012 and 2013 was equal to the average bull harvest during the previous 5 years. In 2014 the unlimited permits were changed to first-choice only, and harvest increased with the highest number of bulls harvested since 2006 (Table 1).

3. **How will the success of this proposal be measured? This could be annual game or harvest surveys, game damage complaints, etc.**

The success of this proposal will be measured with annual aerial surveys for population trends as well as an annual classification survey to determine bull and calf ratios. If the brow-tined bull:cow ratio

increases to within 20% of the long term average and remains at or above this level for 2 consecutive years then this proposed change will be considered successful. The long-term average within the Montana wintering population is 12 brow-tined bulls per 100 cows. If we observe 10 or more brow-tined bulls per 100 cows for 2 consecutive years within HD313, then we will consider that this change has been successful. Alternatively, the long-term average among the entire elk population is 23.2 brow-tined bulls per 100 cows. If we observe 18.5 brow-tined bulls per 100 cows for 2 consecutive years among the entire elk population including HD313 and the northern range of Yellowstone National Park we will consider this proposal successful. Migration of elk into HD313 is dependent upon weather, and in a particularly mild winter fewer bulls may migrate which can affect the HD313 bull ratio. Success of this proposal will indicate that bull numbers have recovered and we will consider options for liberalizing the season including elimination of the limited draw bull permit structure.

In terms of success of the B license opportunity, success will be measured by aerial surveys and the annual hunter survey. If the population continues to be stable or increasing, and hunter success and satisfaction with the B licenses is high, these will be considered successful.

4. **What is the current population's status in relation to the management objectives? (i.e., state management objectives from management plan if applicable; provide current and prior years of population survey, harvest, or other pertinent information).**

The elk management plan guidelines were written at a time when the northern Yellowstone elk herd was substantially larger and with a very different distribution. At its peak, the herd count was ~19,000 elk, of which a small proportion wintered in Montana. The objective was set at 3,000 – 5,000 elk wintering in Montana, but no objective was set for the overall number of animals in the population as most of the population was outside of Montana's jurisdiction. Elk numbers have declined 76% from the population peak, with a total of 4,844 elk observed across Montana and the Yellowstone Park northern range in 2015. Since 2012, 77% of the population has been observed wintering in HD313, with approximately 1,000 or fewer elk wintering within YNP. The elk management plan guidelines are out of date due to the substantial changes in the size and distribution of this elk herd. Past harvest guidelines were based on an assumption that most of the population remained in YNP and was not subject to harvest; during more severe winters higher numbers of elk migrated into Montana and provided increased opportunity but this additional harvest had limited impact on the overall population. Since the population has declined, and most of the elk migrate out of the park, most of the population is now vulnerable to harvest. With this we have observed bull harvest to increase, inconsistent with the overall population trend, so that bull harvest represents an increasingly large proportion of the population (Figure 2).

This herd is subject to heavy predation pressure from wolves, bears, lions and mid-size carnivores across their range. In addition, elk have very low habitat security from hunters along their fall migration route, with open habitat and roads throughout a pinch-point in their migration. Recruitment has been very low for the past 2 decades, likely due to a combination of high predation and drought conditions. However recruitment has increased in recent years, with calf ratios above 20 calves per 100 cows within the Montana portion of the range since 2013. Observed numbers of elk increased slightly in 2015, consistent with recent increased recruitment. Along with increased recruitment we have observed increased numbers and ratios of spike bulls. With increased recruitment of spike bulls we have also observed increased harvest of brow-tined bulls, resulting in no increase in brow-tined bull ratios in spite of improved overall numbers and calf/spike recruitment (Table 1).

5. **Provide information related to any weather/habitat factors, public or private land use or resident and nonresident hunting opportunity that have relevance to this change (i.e., habitat security, hunter access, vegetation surveys, weather index, snow conditions, and temperature / precipitation information).**

Hunter access to elk in this hunting district is very good. Large portions of the migratory corridor used by this elk herd are on public land with good road access. Most of the hunting district is public land with good road and trail access. Portions of the hunting district on the west side of the Yellowstone River within Gardiner Basin are private and allow only limited public access in addition to outfitting, however significant harvest still occurs on the west side of the river on both private and public land. Weather is an important factor in elk vulnerability to harvest. During archery season and early rifle season, resident elk within Gardiner Basin and the Dome Mountain area are fairly accessible for harvest. With early snowfall elk begin migrating from summer range in Yellowstone National Park and the Absaroka-Beartooth Wilderness, and move across public land in MT to their winter range in the Gardiner Basin and Dome Mountain WMA. With heavy snowfall large numbers of elk migrate, providing excellent hunter opportunity. Much of the migratory corridor is open grassland habitat which provides little to no habitat security for elk. Additionally some portions of the corridor cross or are in proximity to public roads, resulting in high vulnerability of elk.

6. **Briefly describe the contacts you have made with individual sportsmen or landowners, public groups or organizations regarding this proposal and indicate their comments (both pro and con).**

This proposed change has generated much discussion among sportsmen, outfitters, landowners and within FWP. The area game warden Chris Kerin and I have made contacts regarding this proposal with sportsmen and outfitters in the Gardiner Basin and across the region. I have presented this proposed change to membership meetings of the Livingston Rod & Gun club and local watershed groups, and with FWP Region 3 wildlife and enforcement staff. There is strong support among the sporting community for limited draw permits. Additionally, there is some support for this proposal among the outfitting and landowner communities. There are several outfitters that rely on nonresident opportunity in this hunting district who will be severely impacted and are not supportive of the proposed change. There has been support among outfitters and some local Gardiner residents for less restrictive options, including area closures and/or shortened seasons. These options are not being proposed as they are less likely to be effective, and given the very low brow-tined bull ratios we consider it important to institute a season structure that is most likely to be effective and efficient in recovering the bull component of the population.

Table 1. Late winter helicopter classification survey results for northern Yellowstone elk, 1995-2015 and annual brow-tined bull harvest. The "Total Northern Range" results include elk classified within both Montana and Yellowstone National Park portions of the range; "Montana Only" results include only those elk classified north of Yellowstone National Park in hunting district 313.

	Total Northern Range					Montana Only					
Year	Total Elk Classified	Total Calves: 100 Cows	Total Yearling bulls: 100 cows	Total Adult Bulls:100 cows	Total Bulls: 100 cows	MT Elk Classified	MT Calves: 100 Cows	MT Yearling bulls: 100 cows	MT Adult Bulls: 100 cows	MT Bulls: 100 Cows	Bulls Harvested
1995	3,613	33.4	10.9	28.7	39.7	983	62.1	20.0	60.1	80.0	220
1996	2,921	28.5	8.7	25.8	34.5			survey restricted to YNP			144
1997			no survey					no survey			98
1998	2,720	22.4	4.2	60.9	65.1	387	34.7	9.0	50.8	59.8	86
1999	4,055	33.9	8.9	42.0	50.8	1,685	46.3	13.4	28.0	41.3	131
2000	3,157	22.7	6.7	16.8	23.5	1,773	26.8	6.4	1.3	7.7	229
2001	1,869	29.0	6.5	53.6	60.1	644	35.2	6.9	10.2	17.0	134
2002	4,001	13.8	7.2	35.9	43.1	1,200	11.4	9.5	13.3	22.8	200
2003	4,200	12.4	3.7	18.1	21.8	1,315	18.0	2.6	3.9	6.4	105
2004	3,167	12.3	3.4	20.7	24.1	1,075	19.8	3.9	6.3	10.2	123
2005	3,508	13.0	4.5	15.8	20.3	1,039	17.2	7.5	1.7	9.2	299
2006	3,649	23.8	6.0	13.9	19.9	2,116	26.6	7.1	7.3	14.5	453
2007	4,828	18.6	6.1	11.7	17.8	1,646	23.0	7.1	1.0	8.1	141
2008	3,656	11.4	2.4	14.4	16.8	2,578	14.0	2.2	9.6	11.9	122
2009	4,269	21.5	4.0	10.7	14.7	1,793	27.2	4.7	1.9	6.6	128
2010			no survey					no survey			291
2011			no survey					no survey			155
2012	5,146	10.8	4.2	8.1	12.3	2,065	11.1	4.3	0.8	5.1	168
2013	3,507	18.4	5.4	10.5	15.8	1,257	20.9	7.3	2.7	10.0	167
2014			(survey restricted to north of YNP)			2,772	24.1	8.7	3.1	11.8	315
2015	3930	26.5	8.7	6.5	15.2	2,507	29.6	9.4	2.7	12.1	
10-Year Average (2006-2015)		18.7	5.2	10.8	16.1		22.1	6.4	3.7	10.0	215.6
Previous 11-Year Ave (1995-2005)		22.1	6.5	31.8	38.3		30.2	8.8	19.5	28.3	160.8
21-Year Average (1995-2015)		20.7	6.0	23.2	29.1		26.4	7.6	12.0	19.7	185.5

Figure 1. Brow-tined Bull ratios observed within the northern Yellowstone elk herd including total population and elk observed within Montana (HD313)

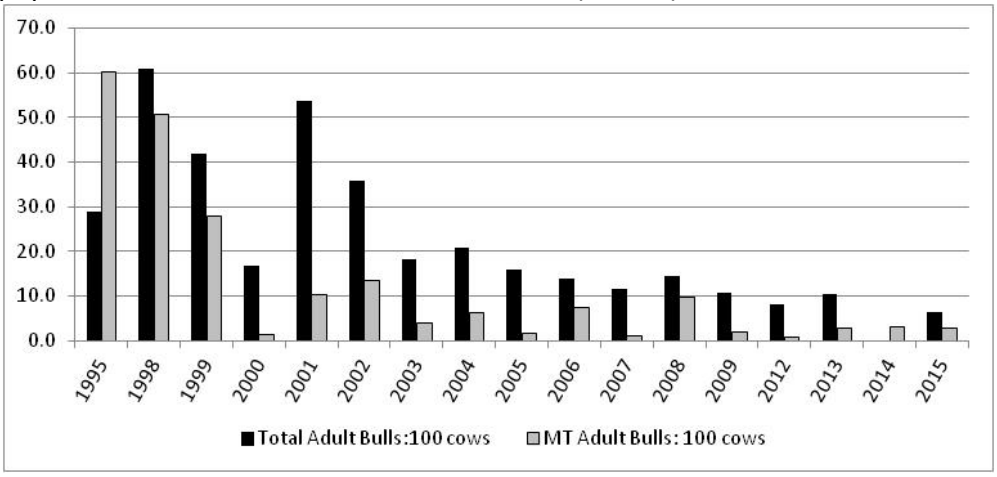
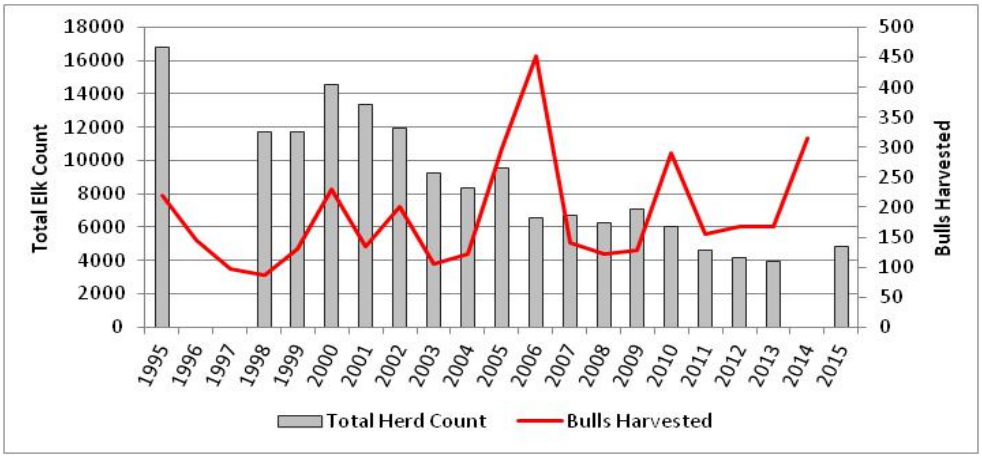


Table 2. The Proportion of bulls harvested in HD 313 with 6 points or greater on one or more antler has declined over the past 10 years from 88% in 2004 to 48% in 2014. This trend is consistent for both resident and non-resident hunters.

Year	Non-Resident Hunters	Resident Hunters	All Hunters
2004	85%	90%	88%
2005	79%	89%	86%
2006	77%	69%	75%
2007	61%	38%	53%
2008	58%	66%	60%
2009	54%	53%	54%
2010	60%	74%	69%
2011	55%	50%	53%
2012	45%	68%	54%
2013	52%	56%	53%
2014	48%	49%	48%

Figure 2. Number of bulls harvested annually in relation to elk population trends



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Reason for Modification: